Date: **March 5, 2014**
School / Department **Mathematics**

Santa Barbara Unified School District
NEW COURSE APPROVAL

I. The teacher proposing the new course of approval will submit this completed form to the Assistant Superintendent, Secondary Education on or by _____.

II. If a new textbook needs to be purchased for the new course, please remember to complete the 'Request for Textbook Adoption (Non- Primary State Adoption)' form.

III. Description of Proposed Course.

Before you complete this form, please make sure that you have considered the following questions:
- *Is there a similar course already being taught at another site?*
- *Have I looked through the district course catalog to make sure that the course doesn't already exist?*

A. Title of course **CCSS Integrated Math I Plus Enrichment**
B. Length of course (semester, year long) **Year Long**
C. Targeted population
Special Education GATE English Language Learners
D. Description of the standards taught in the course.
See attached course description

If you need more room to answer the questions than what is allotted, please continue onto an additional sheet of paper and attach to form.

E. What A-G requirement does it fulfill? (High School Course only) **Area C**
F. Does the course have targeted ability level? If so, what is the designation of the course? (AP, Honors, College Prep) **College Prep**
G. Explain the rationale for the creation of the course. What need does it fulfill?
Integrated Mathematics I is the first of three courses that addresses the state adopted California Common Core Standards in high school. It is intended for students who demonstrate a need for mathematical experiences and topics beyond CCSS Integrated Mathematics I. It is designed to address all of the CCSS Integrated Mathematics I content and math practices while providing students additional enrichment opportunities to increase students' depth of understanding by developing expertise in the modeling process and applying mathematics to novel and complex contexts.

H. Describe the instructional materials used. Include the cost of instructional materials. **A team of district math teachers is in the process of gathering instructional materials for this course from both currently adopted instructional materials and new resources aligned to Common Core Standards. The course is designed around the scope and sequence created by the Georgia Department of Education. The Georgia mathematics units of instruction are developed under a grant from the U.S. Department of Education.**

I. Describe any other costs associated with the course. What will be your source of funding for these materials? **There will be additional costs associated with photocopying materials for students and student learning materials (i.e. manipulatives, technology tools).**

_____
_____
_____

J. What is the targeted grade level of this course? **9th grade** Justification for targeted grade level **The course is based on the first year of Common Core math standards for high school.**

_____
_____
_____

K. Describe how this course fits into the sequence of courses already being offered at your site. **This course will be a part of a new series of secondary math courses that are designed to address the Common Core State Standards for Mathematics.**

_____
_____

L. What credential(s) are required to teach this course? **Single Subject Mathematics credential** _____ Additional training? **No**_____

M. Are there any partnerships with outside agencies? (businesses, community programs, colleges, grants). If yes, please explain. **None**

_____
_____

IV. Site Level Approval Signatures

_____Date_____
Teacher Proposing Course

_____Date_____
Department Chair

_____Date_____
Additional Teacher (Same Department)

_____Date_____
Head Counselor

_____Date_____
Principal

V. After obtaining signatures, please forward this document to the Assistant Superintendent, Secondary Education at the District Office.

_____ Date _____
Assistant Superintendent, Secondary Education

CCSS Integrated Mathematics I Plus Enrichment

Integrated Mathematics I Plus Enrichment focuses on the same Common Core State Standards content standards as Integrated Mathematics I (listed below), and includes additional topics and assignments (e.g., projects) that allow students the opportunity to connect their learning to other disciplines. These "enrichment opportunities should allow students to increase their depth of understanding by developing expertise in the modeling process and applying mathematics to novel and complex contexts." (Massachusetts 2012).

The Integrated Mathematics I Plus Enrichment course will contain extra topics not included in Integrated Mathematics I. These topics include elements from mathematics and applications in other disciplines that would be interesting to advanced middle school students. In addition, students in the Plus Enrichment course will have increased opportunities to model contextual situations with the mathematics at their grade level. The course have increased rigor and advanced content that will challenge the minds of high ability students.

The fundamental purpose of Mathematics I is to formalize and extend the mathematics that students learned in the middle grades. The critical areas, organized into units, deepen and extend understanding of linear relationships, in part by contrasting them with exponential phenomena, and in part by applying linear models to data that exhibit a linear trend. Mathematics 1 uses properties and theorems involving congruent figures to deepen and extend understanding of geometric knowledge from prior grades. The final unit in the course ties together the algebraic and geometric ideas studied. The Mathematical Practice Standards apply throughout each course and, together with the content standards, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations.

Critical Area 1: By the end of eighth grade students have had a variety of experiences working with expressions and creating equations. In this first unit, students continue this work by using quantities to model and analyze situations, to interpret expressions, and by creating equations to describe situations.

Critical Area 2: In earlier grades, students define, evaluate, and compare functions, and use them to model relation- ships between quantities. In this unit, students will learn function notation and develop the concepts of domain
and range. They move beyond viewing functions as processes that take inputs and yield outputs and start viewing functions as objects in their own right. They explore many examples of functions, including sequences; they interpret functions given graphically, numerically, symbolically, and verbally, translate between representations, and understand the limitations of various representations. They work with functions given by graphs and tables, keeping in mind that, depending upon the context, these representations are likely to be approximate and incomplete. Their work includes functions that can be described or approximated by formulas as well as those that cannot. When functions describe relationships between quantities arising from a context, students reason with the units in which those quantities are measured. Students build on and informally extend their understanding of integer exponents to consider exponential functions. They compare and contrast linear and exponential functions, distinguishing between additive and multiplicative change. They interpret arithmetic sequences as linear functions and geometric sequences as exponential functions.

Critical Area 3: By the end of eighth grade, students have learned to solve linear equations in one variable and have applied graphical and algebraic methods to analyze and solve systems of linear equations in two variables. This unit builds on these earlier experiences by asking students to analyze and explain the process of solving an equation
and to justify the process used in solving a system of equations. Students develop fluency writing, interpreting, and translating between various forms of linear equations and inequalities, and using them to solve problems. They master the solution of linear equations and apply related solution techniques and the laws of exponents to the creation and solution of simple exponential equations. Students explore systems of equations and inequalities, and they find and interpret their solutions. All of this work is grounded on understanding quantities and on relationships between them.

Critical Area 4: This unit builds upon prior students' prior experiences with data, providing students with more formal means of assessing how a model fits data. Students use regression techniques to describe approximately linear relationships between quantities. They use graphical representations and knowledge of the context to make judgments about the appropriateness of linear models. With linear models, they look at residuals to analyze the goodness of fit.

Critical Area 5: In previous grades, students were asked to draw triangles based on given measurements. They also have prior experience with rigid motions: translations, reflections, and rotations and have used these to develop notions about what it means for two objects to be congruent. In this unit, students establish triangle congruence criteria, based on analyses of rigid motions and formal constructions. They solve problems about triangles, quadrilaterals, and other polygons. They apply reasoning to complete geometric constructions and explain why they work.

Critical Area 6: Building on their work with the Pythagorean Theorem in 8^{th} grade to find distances, students use a rectangular coordinate system to verify geometric relationships, including properties of special triangles and quadrilaterals and slopes of parallel and perpendicular lines.

Units	Includes Standard Clusters*	Mathematical Practice Standards
Unit 1 Relationships Between Quantities Text	• Reason quantitatively and use units to solve problems. • Interpret the structure of expressions. • Create equations that describe numbers or relationships.	**Make sense of problems and persevere in solving them.** **Reason abstractly and quantitatively.** **Construct viable arguments and critique the reasoning of others.** **Model with mathematics.** **Use appropriate tools strategically.** **Attend to precision.** **Look for and make use of structure.** **Look for and express regularity in repeated reasoning.**
Unit 2 Linear and Exponential Relationships	• Represent and solve equations and inequalities graphically. • Understand the concept of a function and use function notation. • Interpret functions that arise in applications in terms of a context. • Analyze functions using different representations. • Build a function that models a relationship between two quantities. • Build new functions from existing functions. • Construct and compare linear, quadratic, and exponential models and solve problems. • Interpret expressions for functions in terms of the situation they model.	
Unit 3† Reasoning with Equations	• Understand solving equations as a process of reasoning and explain the reasoning. • Solve equations and inequalities in one variable. • Solve systems of equations.	
Unit 4 Descriptive Statistics	• Summarize, represent, and interpret data on a single count or measurement variable. • Summarize, represent, and interpret data on two categorical and quantitative variables. • Interpret linear models.	
Unit 5 Congruence, Proof, and Constructions	• Experiment with transformations in the plane. • Understand congruence in terms of rigid motions. • Make geometric constructions.	
Unit 6 Connecting Algebra and Geometry through Coordinates	• Use coordinates to prove simple geometric theorems algebraically.	

*In some cases clusters appear in more than one unit within a course or in more than one course. Instructional notes will indicate how these standards grow over time. In some cases only certain standards within a cluster are included in a unit.

†Note that solving equations and systems of equations follows a study of functions in this course. To examine equations before functions, this unit could be merged with Unit 1.